# KING SYSTEMS C o r p o r a t i o n

Relentless Innovation. Compassionate Solutions.

# KLTD/KLTSD

Disposable Supralaryngeal Airways\*

\*KING LT-D and KING LTS-D™



EMS Inservice Program

# <u>safe..</u>

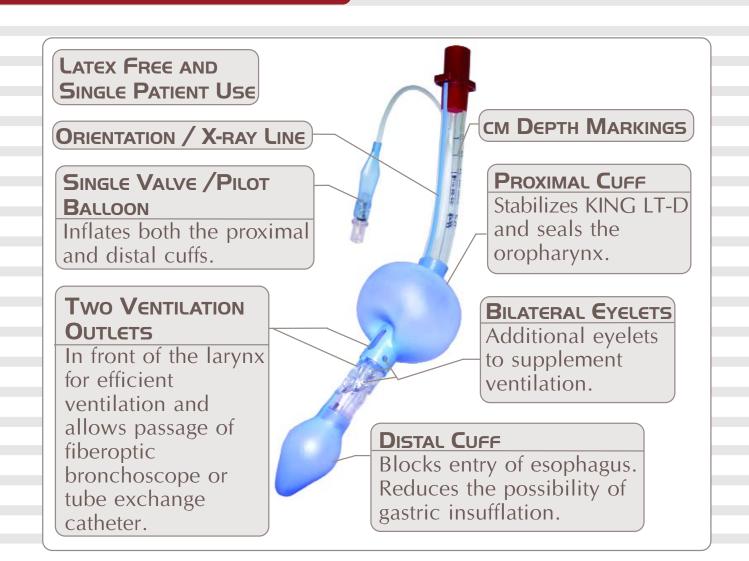
# KLTD/KLTSD Disposable Supralaryngeal Airways

## KLTD/KLTSD Disposable Supralaryngeal Airways

The KLTD/KLTSD are disposable supralaryngeal airways created as alternatives to tracheal intubation or mask ventilation. The KLTD/KLTSD are designed for positive pressure ventilation as well as for spontaneously breathing patients, thereby allowing maximum versatility as airway management tools. The KLTD/KLTSD consistently achieve a ventilatory seal of 30 cm H<sub>2</sub>O or higher. They are easy to insert and result in minimal airway trauma. The KLTD/KLTSD are 100% latex free and are designed for single patient use. The KING LTS-D offers the unique ability to pass a gastric tube through a second channel of the airway into the stomach.

EMS, Page 2 08.23.06

# KING LT-D Design blemefficient



08.23.06 EMS, Page 3

# KING LTS-D Design

DESIGN FEATURES **EXCLUSIVE TO THE** PROXIMAL OPENING OF GASTRIC ACCESS LUMEN KING LTS-D. PRIMARY VENTILATORY **O**PENING BILATERAL MULTIPLE DISTAL VENTILATION EYELETS VENTILATORY **OPENINGS** DISTAL TIP AND CUFF DISTAL OPENING Anatomically shaped to assist in passage OF GASTRIC behind the larynx and into the normally Access collapsed esophagus. LUMEN

08.23.06

# KLTD/KLTSD EMS Kits

## KING LT-D Kit Includes:

- KING LT-D
- 60 cc or 80 cc Syringe
- Lubricant
- Instructions for Use

## KING LTS-D Kit Includes:

- KING LTS-D
- 60 cc or 80 cc Syringe
- Lubricant
- Instructions for Use



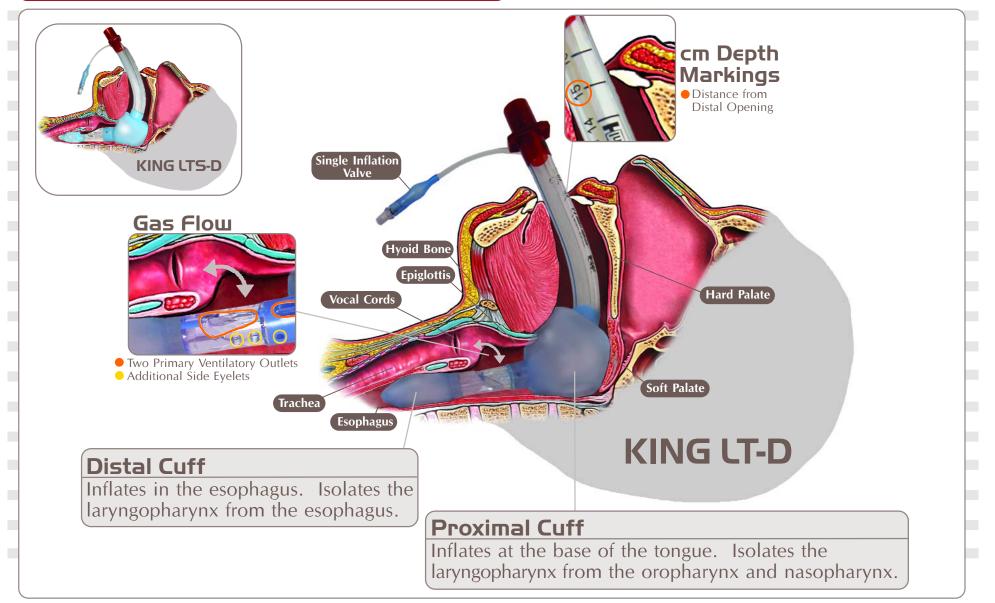
..efficient



\*KING LT-D EMS Kits pictured

EMS, Page 5

# Placement Diagram | E....eff | C | E |



EMS, Page 6

## The design of the KLTD & KLTSD offers:

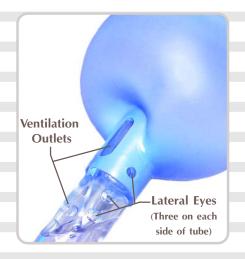
- 1. The ability to provide positive pressure ventilation as well as spontaneous breathing.
- 2. A seal pressure over 30 cm  $H_2O$ .
- 3. Ease of insertion.
- 4. Low incidences of sore throat and trauma.
- 5. Minimizes gastric insufflation.
- 6. KLTSD allows easy passing of a gastric tube through the gastric access lumen into the stomach.

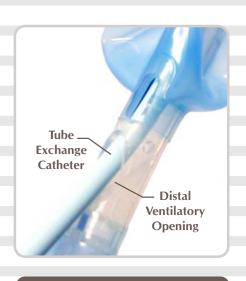
EMS, Page 7 08.23.06

# KING LT-D Design (cont.)









Soft, flexible beveled tip inside distal cuff

Soft, pliable cuffs

Two main
ventilation outlets and
bi-lateral eyes
for additional
ventilation

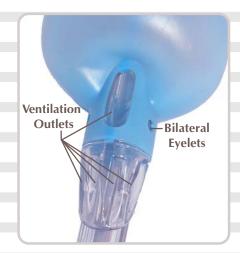
Ramp directs tube exchange catheter out ventilation opening

EMS, Page 8 08.23.06

# KING LTS-D Design

# <u>le...efficient</u>







Distal tip and cuff flattened for more anatomical fit behind larynx

Multiple ventilation outlets and bilateral eyelets for best ventilation

Ramp directs tube exchange catheter out Primary Ventilatory Opening

EMS, Page 9 08.23.06

## Curved Design

The KLTD/KLTSD supraglottic airways are designed with a straightened, beveled distal tip that assists in directing the airways posterior to the larynx and into the upper esophagus. Due to this unique configuration, there is minimal risk of either device entering the trachea.



... efficier

EMS, Page 10 08.23.06

# Indications of the KLTD/KLTSD

The KLTD/KLTSD is intended for airway management in patients over 4 ft in height (122 cm) for controlled or spontaneous ventilation.

## Contraindications

- Responsive patients with an intact gag reflex.
- Patients with known esophageal disease.
- Patients who have ingested caustic substances.

Note: The KLTD/KLTSD does not protect the airway from the effects of regurgitation and aspiration.

# KING LT-D

## Sizing & Information



KING LT-D SIZE	3	4	5
CONNECTOR COLOR	Yellow	Red	Purple
RECOMMENDED PATIENT HEIGHT	4-5 feet (122-155 cm)	5-6 feet (155-180 cm)	greater than 6 feet (180 cm)
Ітєм #	KLTD213	KLTD214	KLTD215
O.D./I.D.	14 mm/10 mm	14 mm/10 mm	14 mm/10 mm
Cuff Pressure	60 cm H <sub>2</sub> O	60 cm H <sub>2</sub> O	60 cm H <sub>2</sub> O
CUFF VOLUME	45-60 ml	60-80 ml	70-90 ml

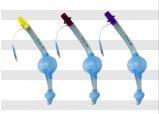
Maximum Size Fiberoptic Bronchoscope: 7.0 mm O.D., Maximum Size Tube Exchange Catheter: 19 Fr, Maximum ET Tube: 6.0 mm I.D.



**CUFF PRESSURE GAUGE** 

**ITEM #** KLT 900

# KING LTS-D Sizing & Information



KING LTS-D	3	4	5
CONNECTOR COLOR	Yellow	Red	Purple
RECOMMENDED PATIENT HEIGHT	4-5 feet (122-155 cm)	5-6 feet (155-180 cm)	greater than 6 feet (180 cm)
Ітєм #	KLTSD403	KLTSD404	KLTSD405
O.D./I.D.*	18 mm/10 mm	18 mm/10 mm	18 mm/10 mm
CUFF PRESSURE	60 cm H <sub>2</sub> O	60 cm H <sub>2</sub> O	60 cm H <sub>2</sub> O
GASTRIC TUBE	up to 18 Fr	up to 18 Fr	up to 18 Fr
CUFF VOLUME	45-60 ml	60-80 ml	70-90 ml

\*Ventilation Lumen is not round, but is equivalent to a 10 mm I.D. tube, Max Tube Exchange Catheter: 19 Fr, Max Fiberoptic Bronchoscope: 6 mm OD, Minimum Mouth Opening: 20 mm



**CUFF PRESSURE GAUGE** 

**ITEM #** KLT 900

<u>safe...reliable...efficie</u>

# KLTD/KLTSD Insertion Guide, Preparation

- Choose correct size based on patient's height:
  - · 4 to 5 ft (122-155 cm) Size 3
  - 5 to 6 ft (155-180 cm) Size 4
  - · > than 6 ft (180 cm) Size 5
- Test cuff inflation system for air leak.
- \*Apply water-soluble lubricant to the distal tip.

EMS, Page 14

# <u>safe…reliable…efficient</u>

## Insertion Guide, Step I

Hold the KLTD/KLTSD at the connector with dominant hand.

With non-dominant hand, hold mouth open and apply chin lift.

Using a lateral approach, introduce tip into mouth.





\*Insertion steps are the same for both the KING LT-D and KING LTS-D.

EMS, Page 15 08.23.06

# safe...reliable...efficient

## Insertion Guide, Step 2

Advance the tip behind the base of the tongue while rotating tube back to midline so that the blue orientation line faces the chin of the patient.



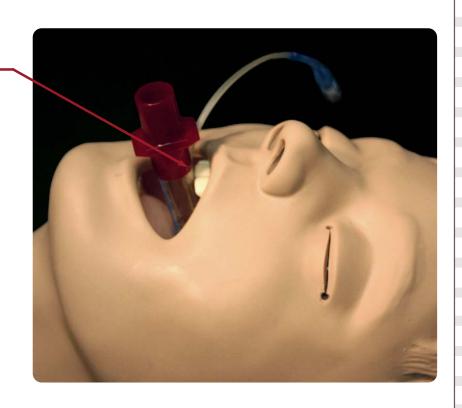


EMS, Page 16 08.23.06

# <u>safe...reliable...efficient</u>

## Insertion Guide, Step 3

Without exerting excessive force, advance tube until base of connector is aligned with teeth or gums.



EMS, Page 17 08.23.06

# safe...reliable...efficient

Insertion Guide, Step 4

Inflate the KLTD/KLTSD with the appropriate volume:

Size 3 = 50ml

Size 4 = 70ml

Size 5 = 80 ml



Note: Typical inflation volumes are as follows: Size #3 45-60 ml, Size #4 60-80 ml, Size #5 70-90 ml

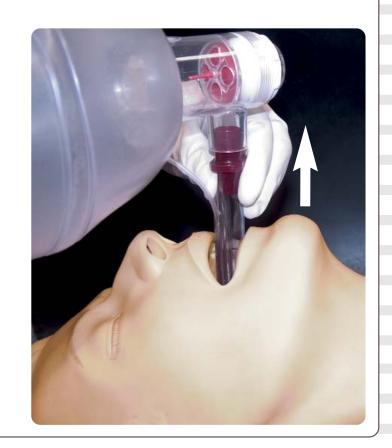
EMS, Page 18 08.23.06

# Insertion Guide, Step 5

Attach the resuscitator bag to the KLTD/KLTSD.

While bagging the patient, gently withdraw the tube until ventilation becomes easy and free flowing (large tidal volume with minimal airway pressure).

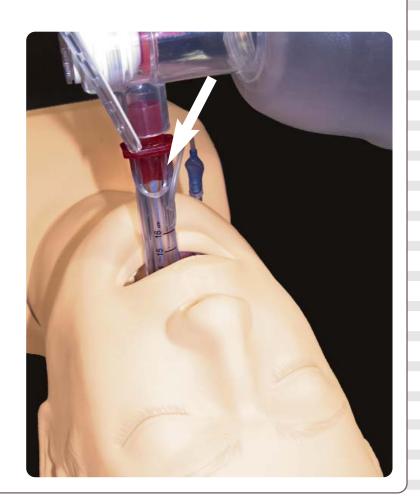
Adjust cuff inflation if necessary to obtain a seal of the airway at the peak ventilatory pressure employed.



# Insertion Guide, Step 6

# When utilizing the KING LTS-D's gastric access lumen:

Lubricate gastric tube (up to an 18 Fr ) prior to inserting into the KLTD/KLTSD's gastric access lumen.



# Safe...reliable...e User Tips

- 1.The key to insertion is to get distal the tip of KLTD/KLTSD around the corner in the posterior pharynx, under the base of the tongue. Experience has indicated that the lateral approach, in conjunction with a chin lift, facilitates the placement of the KLTD/KLTSD. Alternatively, a laryngoscope or tongue depressor can be used to lift the tongue anteriorly to allow easy advancement of the KLTD/KLTSD into position.
- 2.Insertion can also be accomplished via a midline approach by applying a chin lift and sliding the distal tip along the palate and into position in the hypopharynx. In this instance, head extension may also be helpful.
- 3.As the KLTD/KLTSD is advanced around the corner in the posterior pharynx, it is important that the tip of the device be maintained at the midline. If the tip is placed or deflected laterally, it may enter into the piriform fossa and the tube will appear to bounce back upon full insertion and release. Keeping the tip at the midline assures that the distal tip is properly placed in the hypopharynx/upper esophagus.

EMS, Page 21 08.23.06

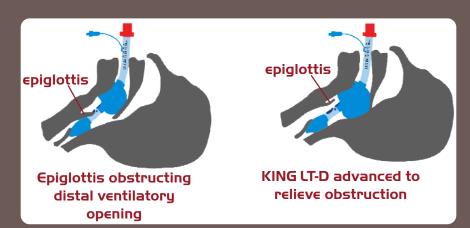
# User Tips (cont.)

- 4.Depth of insertion is key to providing a patent airway. Ventilatory openings of the KLTD/KLTSD must align with the laryngeal inlet for adequate oxygenation/ventilation. Experience has indicated that initially placing the KLTD/KLTSD deeper (base of connector is aligned with teeth or gums), inflating the cuffs, and retracting until ventilation becomes easy and free flowing is preferred because:
- It ensures that the distal tip has not been placed laterally in the piriform fossa (see item #3).
- With a deeper initial insertion, only withdrawal is required to realize a patent airway. A shallow insertion will require deflation of cuffs to advance the tube deeper.
- As the KLTD/KLTSD is withdrawn, the initial ventilation opening exposed to/aligned with the laryngeal inlet is the proximal opening. Since the proximal opening is closest to and is partially surrounded by the proximal cuff, airway obstruction is less likely.
- Withdrawal of the KLTD/KLTSD with the cuffs inflated results in a retraction of tissue away from the laryngeal inlet, thereby encouraging a patent airway.

EMS, Page 22

## User Tips (cont.)

5.During spontaneous ventilation, the epiglottis or other tissue can be drawn into the distal ventilatory opening, resulting in obstruction.
Advancing the KLTD/KLTSD
1-2 cm or initiating deeper placement normally eliminates this obstruction.



- 6.Ensure that the cuffs are not over inflated. Cuff pressure should be adjusted to 60 cm H<sub>2</sub>O or to "just seal" volume.
- 7.Removal of the KING LT-D is well tolerated until the return of protective reflexes. For later removal, it may be helpful to remove some air from the cuffs to reduce the stimulus during wake-up.
- 8. KING LTS-D: Lubricate the gastric tube prior to inserting into gastric access lumen.

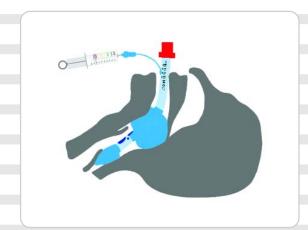
EMS, Page 23

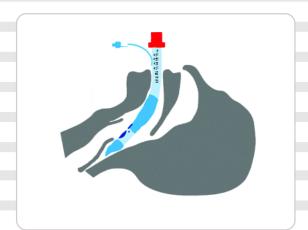
# <u>safe...reliable...efficient</u>

## KLTD/KLTSD Removal

- Suction above cuffs in the oral cavity if indicated.
- FULLY deflate both cuffs before removal of the KLTD/KLTSD.

  Note: If a 90 cc syringe is not available, it may require more than one filling to achieve complete evacuation of the KLTD/KLTSD cuffs.
- Remove the KLTD/KLTSD when protective reflexes have returned.



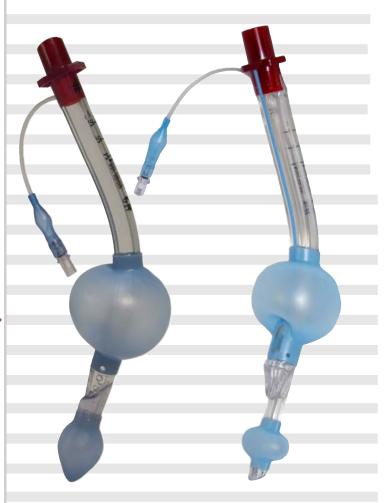


EMS, Page 24 08.23.06

## Conclusion

# The KLTD/KLTSD are versatile airway tools offering:

- 1. The ability to provide positive pressure ventilation as well as spontaneous breathing.
- 2. A seal pressure over 30 cm  $H_2O$ .
- 3. Ease of insertion.
- 4. Low incidences of sore throat and trauma.
- 5. Minimizes gastric insufflation.
- 6. The KING LTS-D allows easy passing of a gastric tube through the gastric access lumen into the stomach.



E...efficient

## Questions & Answers

# <u>le...efficient</u>

#### Q. Can the KLTD/KLTSD be used for positive pressure ventilation?

A. The KLTD/KLTSD was designed for use with positive pressure ventilation as well as spontaneously breathing patients. It consistently achieves a ventilatory seal of at least 30 cm H<sub>2</sub>O.

#### Q. Is there an optimal head position for insertion?

A. Sniffing position is optimal, however insertion can also be accomplished with the head in the neutral position. For obese patients, elevation of the shoulders and upper back should be considered.

#### Q. What sizes are available?

A. The KLTD/KLTSD is available in size 3, 4, and 5. This covers patients 4 feet and taller.

#### Q. How do I determine what size to use?

A. Sizing is based on the patient's height. Size 3: 4 to 5 ft (122-155 cm), Size 4: 5 to 6 ft (155-180 cm), Size 5: > than 6 ft (180 cm).

## Q. What size gastric tube can be inserted through the gastric access lumen of the KING LTS-D?

A. Up to an 18 Fr gastric tube can be inserted through the gastric access lumen of the KLTSD. Note: Lubricating the gastric tube greatly facilitates its passage.

### Q. What is the best way to hold the KLTD/KLTSD during insertion?

A. By grasping the connector, insertion can be easily accomplished with a single motion.

#### Q. How do I insert the KLTD/KLTSD?

A. With the dominant hand holding the KLTD/KLTSD, apply chin lift with non-dominant hand. This technique is similar to intubation where a laryngoscope provides the chin lift and an endotracheal tube is inserted laterally.

EMS, Page 26 08.23.06

## Questions & Answers (cont.)

## Q. What is the correct depth of insertion?

A. While each patient is unique and therefore requires clinical judgment, feedback has indicated that initially placing the product with connector to the teeth, inflating the cuffs, and withdrawing the KLTD/KLTSD until ventilation is optimized results in the best depth of insertion.

## Q. Can a laryngoscope be used?

A. Although not routinely needed, a laryngoscope may be helpful for the inexperienced user or for difficult insertions.

#### Q. What volume of air is needed to properly inflate the cuffs?

A. Always use the least amount of air needed to create a seal at the desired ventilatory pressures. The average inflation volume for each size is as follows: Size 3 = 50 ml, Size 4 = 70 ml, Size 5 = 80 ml. Note that the inflation volume differs for each patient. Typical volumes will be within 10 ml of the average listed for each size. Preferrably, cuffs should be inflated to a pressure of 60 cm  $H_2O$  instead of inflating with a set volume.

#### Q. What pressure do I inflate the cuffs to?

A. Using a pressure gauge like the KLT 900, inflate all sizes of the KLTD/KLTSD to 60 cm H<sub>2</sub>O.

## Q. What is the reference point for the centimeter depth markings on the KLTD/KLTSD?

A. The cm markings indicate the distance from the distal ventilatory opening. Like the cm markings found on a tracheal tube, KLTD/KLTSD cm markings serve as a visual reference after placement and can be used to document insertion depth.

## Q. How long can the KLTD/KLTSD be left in place?

A. The KLTD/KLTSD has been used in routine procedures up to 8 hours. For longer procedures it is important to monitor and limit cuff pressure to 60 cm  $H_2O$  or less or when  $N_2O$  is used.

## Q. If, I need to mechanically ventilate my patient, do I need to replace the KLTD/KLTSD with a tracheal tube as I would with an LMA type device?

A. Due to the improved ventilatory seal of the KLTD/KLTSD compared to other supraglottic airways, the need to switch to a tracheal tube should be less frequent with the KLTD/KLTSD than with LMA type devices.

EMS, Page 27 08.23.06

## Questions & Answers (cont.)

## Q. How do I exchange the KING LT-D for a tracheal tube?

A. If tracheal intubation is indicated, a lubricated size 6.0 standard tracheal tube can be inserted directly through the KLTD with tracheal placement confirmed fiberoptically. Experience has indicated that you may need to withdraw the KLTD slightly to facilitate alignment of the distal ventilatory opening with the laryngeal inlet, thereby allowing advancement of the tracheal tube into the trachea. Once the tracheal tube has been installed in the trachea, the KLTD can remain in place with the cuffs deflated, or the entire assembly can be exchanged for another tracheal tube using a tube exchange catheter.

## Q. Can a tube exchange catheter be used to exchange the KING LT-D for a tracheal tube?

A. Yes, this is actually the preferred method when using the KLTSD (see below).

#### Q. What method is used to exchange a tracheal tube for a KING LTS-D?

A. The technique involves the use of a tube exchange catheter inserted through the KLTSD ventilation channel. For best results, visualization of tube exchange catheter placement into the trachea is recommended. This can be accomplished by direct laryngoscopy or by using a fiberoptic bronchoscope. The Aintree Intubation Catheter (Cook Critical Care) allows a pediatric fiberoptic bronchoscope to be placed inside the exchange catheter. Note that lubrication of the exchange catheter is indicated to facilitate in passing it through the KLTSD

#### Q. How do I clean the KLTD/KLTSD?

A. The KLTD/KLTSD are sold as single patient use products and should not be reused. If you are interested in the reusable KING LT, contact your sales representative or King Systems at 800-642-5464.

## Q. Does King Systems offer a reusable version of the KLTD/KLTSD?

A. Yes, in fact the reusable KING LT is available worldwide and has been used in over 1 million cases.

## Clinical Studies

#### **OVERALL SUCCESS**

- 1) "50 patients: Insertion was determined to be easy and a patent airway was achieved in all patients." Hagberg C, Bogomolny Y, Gilmore C, Gibson V, Kaitner M, Khurana S. An Evaluation of the Insertion and Function of a New Supraglottic Airway Device, the KING LT™, During Spontaneous Ventilation. Anesth Analg 2006;102:621–5.
- 2) 175 patients: Successful mechanical ventilation in 169 patients (96.6%); unacceptable in 3 patients due to airway pressures above 40cm H<sub>2</sub>O; 3 due to unacceptable ventilation. Gaitini L, Vaida S, Somri M, Kaplan V, Yanovski B, Markovits R, Hagberg C. An Evaluation of the Laryngeal Tube During General Anesthesia Using Mechanical Ventilation. Anesth Analg 2003; 96:1750-5.
- 3) 25 patients: LT inserted successfully on the first attempt in all cases. Ocker H, Wenzel V, Schumucker P, Steinfath M, Dorges V. A Comparison of the Laryngeal Tube with the Laryngeal Mask Airway During Routine Surgical Procedures. Anesth Analg 2002; 95:1094-7.
- 4) 30 patients: In all cases, the LT was inserted successfully on the first attempt. Dorges V, Ocker H, Wenzel V, Schmucker P. The Laryngeal Tube: A New Simple Airway Device. Anesth Analg 2000; 90:1220-2.
- 5) 60 patients: In all patients the LT was inserted successfully on the first attempt. Agro F, Galli B. Preliminary Results Using the Laryngeal Tube for Supraglottic Ventilation. Am J Emerg Med Jan. 2002.

#### VENTILATORY SEAL

- 1) In 22 patients, the mean leak pressure was significantly greater for LT vs. LMA; gastric insufflation did not occur with the LT, but was noted in 3 patients with the LMA. Asai T, Kawashima A, Hidaka I, Kawachi S. The laryngeal tube compared with the laryngeal mask: insertion, gas leak pressure and gastric insufflation. Br J Anaesth 2002; 89(5):729-32.
- 2) In a study of 50 patients, the airway leak pressure observed with the LT was 36cm H<sub>2</sub>O vs. 22cm H<sub>2</sub>O with the LMA. Ocker H, Wenzel V, Schumucker P, Steinfath M, Dorges V. A Comparison of the Laryngeal Tube with the Laryngeal Mask Airway During Routine Surgical Procedures. Anesth Analg 2002; 95:1094-7.
- 3) In 30 patients, airway pressures of 40cm H<sub>2</sub>O possible without gastric inflation. Dorges V, Ocker H, Wenzel V, Schmucker P. The Laryngeal Tube: A New Simple Airway Device. Anesth Analg 2000; 90:1220-2.
- 4) Delivered tidal volume of .486L with LT compared to .500L for endotracheal tube; auscultation over the epigastrium during lung inflation with the LT showed no sign of gastric insufflation. Vollmer T, Genzwuerker H, Ellinger K. Fibreoptic control of the laryngeal tube position. Eur J Anaesthesiol 2002; 19:306-7.

#### LOW INCIDENCE OF COMPLICATIONS

- 1) 50 patients: The unique design of the KING LT allows for ease of placement and advancement, minimizes the risk of aspiration, and has acceptable rates of both intraoperative and postoperative complications. Hagberg C, Bogomolny Y, Gilmore C, Gibson V, Kaitner M, Khurana S. An Evaluation of the Insertion and Function of a New Supraglottic Airway Device, the KING LT™, During Spontaneous Ventilation. Anesth Analg 2006;102:621–5.
- 2) In 60 patients, no adverse airway events occurred and no gastric inflation was detected. After 24 hrs no patient reported sore throat, mouth pain or dyspahagia. Agro F, Galli B. Preliminary Results Using the Laryngeal Tube for Supraglottic Ventilation. Am J Emerg Med Jan. 2002.

EMS, Page 29 08.23.06

## Clinical Studies

#### LOW INCIDENCE OF COMPLICATIONS (CONTINUED)

- 3) No blood was visualized in 171 of 175 cases; grade 1 upper airway trauma in 4 patients. Sore throat (12 cases) disappeared within 24 hrs (no treatment required); no complaint of hoarseness occurred. Gastric insufflation was not detected by epigastric auscultation in any patient. Gaitini L, Vaida S, Somri M, Kaplan V, Yanovski B, Markovits R, Hagberg C. An Evaluation of the Laryngeal Tube During General Anesthesia Using Mechanical Ventilation. Anesth Analg 2003; 96:1750-5.
- 4) An in vitro study determined that the storage capacity (regurgitated volume before aspiration occurs) is 3.5ml for the LMA vs. 15ml with the LT. Miller D, Light D. Storage Capacities of th Laryngeal Mask and Laryngeal Tube Compared and Their Relevance to Aspiration Risk During Positive Pressure Ventilation. Anesth Analg 2003; 96:1821-2.

#### LIKELIHOOD OF LT TIP ENTERING TRACHEA

1) In 500 attempts in a mannequin, no inadvertent tracheal intubation occurred. Even using a laryngoscope, the LT could not be placed in the trachea due to the form and length of the tube. Genzwuerker H, Hilker T, Hohner E, Kuhnert-Frey B. The Laryngeal Tube: A New Adjunct for Airway Management. Prehosp Emerg Care 2000; 4(2):168-72.

#### TRACHEAL INTUBATION AFTER PLACEMENT OF THE KING LT

- 1) Fiberoptic placement of a tube exchange catheter through the LT allowed successful switch to tracheal intubation in 9 of 10 patients. Genzwueker H, Vollmer T, Ellinger K. Fibreoptic tracheal intubation after placement of the laryngeal tube. Br J Anaesth 2002; 89(5):733-8.
- 2) After placement of the LT in a 24 yr old male with multiple fractures of the jaw, fiberoptic nasotracheal intubation along side the LT was accomplished. Asai T, Shingu K. Use of the laryngeal tube for nasotracheal intubation. Br J Anaesth 2001; 87(1).

#### DIFFICULT AIRWAY / EMERGENCY AIRWAY USE

- 1) Laryngeal Tube was successfully used in three patients in whom insertion of the laryngeal mask had failed. Asai T, Matsumoto S, Shingu K. Use of the laryngeal tube after failed insertion of a laryngeal mask airway. Anaesthesia 60 (2005) 825-826.
- 2) Laryngeal Tube was inserted easily and adequate ventilation was obtained after failed nasotracheal fiberoptic intubation and failed LMA insertion.

  Asai T. Use of the laryngeal tube for difficult fibreoptic tracheal intubation. Anaesthesia 60 (2005) 826.
- 3) The KING LT-D provides a secure, non-intubating emergency airway when direct laryngoscopy is not feasible. Fowler R. KING LT-D to the Rescue. JEMS 2005 07:90-92.
- 4) In an out-of-hospital emergency setting, the LT was placed in 30 patients in cardiac arrest by minimally trained nurses. Ventilation was adequate in 80% of the cases; no episodes of regurgitation or vomiting occurred and no blood staining on the LT was observed. Kette F, Reffo I, Giordani G, Buzzi F, Borean V, Cimarosti R, Codiglia A, Hattinger C, Mongiat A, Tararan S. The use of laryngeal tube by nurses in out-of-hospital emergencies: Preliminary experience. Resuscitation 2005; 66:21-25.
- 5) EMT students found that they were able to initiate ventilation more rapidly but with equal effectiveness compared to tracheal intubation; compared to BMV, they were able to provide better minute ventilation with the KING LT. Kurola J, Harve H, Kettunen T, Laakso J-P, Gorski J, Paakkonen H, Silfvast T. Airway management in cardiac arrest-comparison of the laryngeal tube, tracheal intubation and bag-valve mask ventilation in emergency medical training. Resuscitation 2004; 61:149-153.

EMS, Page 30 08.23.06

## Clinical Studies

#### DIFFICULT AIRWAY / EMERGENCY AIRWAY USE (CONTINUED)

- 6) Case report: The LT provided adequate ventilation in two difficult airway management cases. Matioc A, Olson J. Use of the Laryngeal Tube™ in two unexpected difficult airway situations: lingual tonsillar hyperplasia and morbid obesity. Canadian Journal of Anesthesia 2004; 51:1018-1021.
- 7) Case report: With tracheal intubation not possible, LT was inserted successfully on first attempt. Ventilation and oxygenation were possible through the LT at all times. Genzwuerker H, Dhonau S, Ellinger K. Use of the laryngeal tube for out-of-hospital resuscitation. Resuscitation 2002; 52:221-4.
- 8) 26 of 28 students stated that insertion with LT was easier than LMA. Tidal volume was significantly greater and the incidence of gastric insufflation was significantly lower with the LT. Asai T, Hidaka I, Kawachi S. Efficacy of the laryngeal tube by inexperienced personnel. Resusciation 2002; 55:171-5.
- 9) LT placed in a 57 yr old female with acute progressive quadriplegia due to subluxation at the atlanto-axial level. Reinforced nsaotracheal tube was subsequently placed fiberoptically along side the LT. Asai T. Use of the Laryngeal Tube in a patient with an unstable neck. Can J Anaesth 2002; 49(6): 642-3.
- 10) LT has a potential role in CPR especially in eldely patients without teeth. Asai T, et al. Use of the laryngeal tube in patients without teeth. Resuscitation 51 (2001) 213-214.

EMS, Page 31 08.23.06

15011 Herriman Boulevard, Noblesville, IN 46060 www.kingsystems.com Toll Free: 800-642-5464

Phone: 317-776-6823 Fax: 317-776-6827

Relentless Innovation. Compassionate Solutions.

KING SYSTEMS